State of Missouri

Final Order of Rulemaking
10 CSR 20-7.015
Effluent Regulations

Missouri Department of Natural Resources
Division of Environmental Quality
Water Protection Program

September 9, 2005

Title 10—DEPARTMENT OF NATURAL RESOURCES
Division 20—Clean Water Commission
Chapter 7—Water Quality

ORDER OF RULEMAKING

By the authority vested in the Missouri Clean Water Commission (commission) under section 644.026, RSMo 2000, the commission amends a rule as follows:

10 CSR 20-7.015 is amended.

A notice of proposed rulemaking containing the text of the proposed amendment was published in the *Missouri Register* on May 2, 2005 (30 MoReg 843-974). Those sections with changes are reprinted here. This proposed amendment becomes effective **December 31, 2005**.

SUMMARY OF COMMENTS: A public hearing on this proposed amendment was held July 6, 2005, and the public comment period ended July 14, 2005. Comments made at the public hearing and during the public comment period are presented here followed by the department's response.

1-Effluent Requirements Based on Bacteria Standards

COMMENT #1-1: Increasing the number of wastewater treatment facilities (WWTFs) that must disinfect will result in a greater risk of chemical accidents among those who will operate the facilities as well as a decrease in water quality as a result of the byproducts of disinfection.
RESPONSE #1-1: The risks associated with chlorine use can be minimized by the proper handling of the chemical and each review of a National Pollutant Discharge Elimination System (NPDES) permit includes an evaluation for the potential for disinfection byproducts to affect downstream uses. Where a discharge poses a reasonable potential for an impact to downstream uses, the permit will include the conditions to ensure maintenance of water quality necessary to protect the uses.

COMMENT #1-2: Proposed trihalomethane standards will limit the use of chlorine disinfection. Ultraviolet light disinfection will be unavailable since it will not effectively disinfect lagoon effluent. With both chlorine and ultraviolet light disinfection unavailable, lagoons will be eliminated as a result of this proposal. Money for disinfection would be better spent in upgrading an aging collection system or eliminating small WWTF that are scheduled to be connected to a regional WWTF than adding disinfection. The impact on public health due to disinfection is nominal and not justified by the cost.
RESPONSE #1-2: The possibility exists for some wastewater treatment plants to need significant improvements to meet the proposed bacteria standards. This includes the possible elimination of some lagoons that are not able to accommodate disinfection processes. Several options are available for compliance with these new standards, including disinfection waivers, wet weather suspensions, and non-

discharging options. An additional option, if necessary, is a compliance schedule that reflects the extent of needed changes in treatment as well as any other significant challenges those changes impose.

COMMENT #1-3: Reference to *E. coli* should be made wherever there is mention of fecal coliform in the effluent regulations in order to begin the transition to the new indicator species. Several comments were received supporting the rule's transition from fecal coliform to *E. coli* as the appropriate indicator bacteria to measure protection for recreational uses.
RESPONSE #1-3: The transition to *E. coli* continues to be supported by this rulemaking. However, the department has not yet determined what would be an appropriate effluent limit for *E. coli*. Discussion of an appropriate effluent limit and the available methods to test *E. coli* in effluent water will be proposed in future rulemakings.

COMMENT #1-4: Fecal coliform limitations within the effluent regulations should be based upon a geometric mean, rather than the current arithmetic average. Another comment suggested the geometric mean be calculated over the recreational period.
RESPONSE AND EXPLANATION OF CHANGE #1-4: The department has revised the fecal coliform limitations from monthly averages to monthly geometric means in 10 CSR20-7.015(2)(B)4., (3)(B)3., (4)(B)4., and (8)(B)4.

COMMENT #1-5: The regulation should specify that bacterial effluent limitations are not required for discharges greater than 2 miles upstream of a whole body contact recreational water body.
RESPONSE #1-5: Discharges within two (2) miles upstream of areas designated for whole body contact are required to meet effluent bacteria limits as stated in subparagraph 10 CSR 20-7.015(8)(B)4.A. Disinfection could also be required for facilities that discharge greater than two (2) miles upstream of areas designated for whole body contact if the discharge would endanger either human health or downstream uses.

COMMENT #1-6: Contact with water is not dependent upon a monthly average. Therefore, a monthly average for bacteria in the effluent regulations is meaningless. The daily maximum effluent limit is not protective of public health. Effluent bacteria limits should only have a daily maximum set at the water quality standard.
RESPONSE #1-6: The proposed bacteria criteria in the water quality standards are based on human health risk levels determined through studies at actual public swimming beaches. The studies considered the risks over a 30-day use period. Therefore, the recommended limits are based on exposure occurring over a one monthly period. Effluent limits are developed to implement the water quality standards. If standards are based on a 30-day exposure periods, then the effluent limits should also reflect that scenario. Once a reliable study presents the risk factors associated with single-day exposure scenarios, then appropriate daily maximum limits may be developed.

COMMENT #1-7: Disinfection may not be needed for protection of secondary contact recreational uses in all cases. The criteria developed for this use was selected at nine times the Category A WBCR criteria, which is not supported by peer-reviewed epidemiological studies. The department should remove references to secondary contact recreation within 10 CSR 20-7.015(9)(H). Situations in which disinfection is appropriately required to protect secondary contact recreation uses may be better managed on a site-specific basis.
RESPONSE #1-7: Secondary contact recreation creates an exposure pathway where bacterial levels within the water body need to be managed. Disinfection may not be needed in all cases, and each discharger may apply for a disinfection waiver. In the absent of a waiver, the standard provides a method to ensure each recreational water has a standard from which to base an assessment of risks to public health during recreation. Because no studies have been done on the risk factors associated with secondary contact, the department has chosen the least restrictive standard approved by USEPA in another state. The department may revisit this standard once more information becomes available on the risks from secondary contact with surface waters at various bacterial levels.

COMMENT #1-8: Either revise the current rule or adopt a formal policy to define the requirements by which the department may waive or relax the effluent limitations for bacteria. Several factors require consideration, such as mixing zones, critical-flow conditions, upstream levels of bacteria, and other watershed sources.
RESPONSE #1-8: A use attainability analysis (UAA) and a high flow exemption are two methods that may be used to propose alternative effluent limitations for bacteria. Both methods are available as a result of this rulemaking.

2-Dechlorination of Effluent

COMMENT #2-1: All chlorinated effluent should be dechlorinated to protect aquatic life.
RESPONSE #2-1: Chlorinated effluent must be dechlorinated before being discharged to losing streams. Dechlorination may also be required for discharges to many other waters, depending on the uses designated to the waters. Exceptions may be given where the discharges enter an unclassified stream where no aquatic life exists, or where the discharge is at least one mile from a classified stream or a flowing stream where the 7Q10 flow is equal to or greater than 50 times the design flow. In either of these instances, chlorine affects on aquatic life is normally minimal if not non-existent.

COMMENT #2-2: Dechlorination requirements for discharges to the Missouri and Mississippi River are not specified for facilities where chlorine is used as a disinfectant. The comment makes two suggestions: (1) the department should not require dechlorination, and (2) if the department requires dechlorination, it should be based on a comparison of the effluent flow to the flow of the water body.

RESPONSE #2-2: Staff agrees that dechlorination requirements are applicable for discharges to the Missouri and Mississippi Rivers as well as lakes and reservoirs. The department may propose in future rulemakings adding dechlorination language similar to that found in 10 CSR 20-7.015(8)(B)4. to sections (2) and (3) of the rule.

3-Schedule of Compliance for New Effluent Limits

COMMENT #3-1: Several comments addressed the proposed schedule of compliance at 10 CSR 20-7.015(9)(H):

- Implementation schedule should be extended to allow up to five years for compliance with the proposed rules.
- Permit holders who have applied for permit renewals but receive a permit after the effective date of the rule due to no fault of their own should get eight years to comply.
- Implementation schedule should be lengthened and should consider time necessary to conduct studies and to implement plans following the completion of studies.
- Compliance schedule should be expanded from 3 years to 5.
- Temporary waivers from the new rules should be granted for facilities that have submitted an application for a permit prior to the effective date of the rule.
- The rules should provide up to 5 years for compliance upon issuance of a permit.
- All facilities should not be granted more than 3 years from the effective date of the rule to comply with the bacteria standard.
- The implementation schedule should also consider the socio-economic impact to communities.
- More flexibility in schedule for complying with new bacteria standards (allow for 5 years)
- Rule should be amended to allow for a compliance schedule longer than 3 years, and suggests 5 years. Longer period is suggested for combined sewer overflow (CSO) communities.

RESPONSE AND EXPLANATION OF CHANGE #3-1: The department has revised the schedule of compliance to allow discharges up to five (5) years from date of next permit issuance or significant modification to comply with the disinfection requirement. However, all discharges must comply with the disinfection requirements by no later than December 31, 2013.

COMMENT #3-2: Effluent rule should clarify that only facilities needing to disinfect are subject to the compliance schedule.
RESPONSE #3-2: The rule is clear that all facilities discharging treated domestic wastewater to classified water bodies are subject to bacteria standards and the requirement to disinfect unless it is shown that the standards or disinfection is unnecessary through a UAA or a water quality study.

4-Effluent Disinfection Waivers

COMMENT #4-1: The rule should define the method for doing a water quality study to show no impacts from lack of disinfection.
RESPONSE #4-1: This is a new issue that was not part of the purpose of the current proposed revisions, but may be discussed with stakeholders and possibly addressed in future rulemakings.

COMMENT #4-2: A disinfection waiver should be specifically established in rule for lagoon systems that have a total surface area of 1.3 acres or more per 200 population equivalents served. A waiver should be provided to account for the lack of seasonal effluent flow or low flow and the significant natural reduction in bacterial levels from lagoon systems. The waiver should become invalid if the department or any other interested party provides site-specific information that documents a need for disinfection.
RESPONSE #4-2: A waiver applicable to certain types of lagoons may not ensure that Missouri's water resources are adequately protected. A site-specific waiver from disinfection, rather than a waiver based on treatment scenarios, requires staff to assess each situation individually and better ensures that disinfection is performed when needed and waived when unnecessary.

5-Wet Weather Suspension (High Flow Exemption)

COMMENT #5-1: Most comments supported a high flow suspension (or exemption) of bacterial standards, but found the proposed language confusing and therefore unclear as to its consistency with federal guidance. Several requests were made to clarify the rule on specific points, including

- how the suspension applies to waters within 2 miles of an effluent point;
- consideration of downstream discharges;
- suspension during either existing uses, attainable uses, or both;
- the application of the suspension to other pollutants during wet weather;
- the use of specific flow measurements to determine the applicable period for the suspension;
- definitions for "wet weather", "use assessment", and "period of suspension";
- how the suspension applies during times that treatment (vs. hydraulic) capacity of the plant is exceeded;
- how recreational uses are protected after the period of suspension;
- where recreational uses are found to not exist, amendment of the state's WQS are needed; and
- an ability for approval of a suspension through the permitting process.

RESPONSE AND EXPLANATION OF CHANGE #5-1: Most of the comments can be addressed through further clarification of the suspension process. Although not all of the comments can be satisfied by this rulemaking. Of the suggestions made, several are in conflict with federal guidance. Specifically, federal guidance does not allow for an exemption of a water quality standard without either the removal (through a UAA) of the designated use to which the standard is designed to protect, or the development of site-specific criteria reflecting the natural conditions (or pollutant levels) of the water during high flows. Therefore, the department must

consider the uses of waters or the naturally limited use conditions of the water during wet weather before applying a suspension of a standard or effluent limit. The department has added or revised the language of this section of the rule to better describe the process for creating a wet weather suspension that incorporates the requirements mentioned above. Further explanation was added to clarify how conditions of waters can be measured during wet weather and how those conditions can be related to existing uses (or to the absence thereof). The rule now describes more clearly the requirements for a Use Attainability Analysis during a wet weather event as the basis for a suspension.

COMMENT #5-2: The Effluent Regulations should be amended to remove the effluent limits on biological oxygen demand (BOD) and total suspended solids (TSS) during wet weather. The rule should instead impose reasonable controls that reflect the protection of existing uses in streams during high flows.
RESPONSE #5-2: This is a new issue that was not part of the purpose of the current proposed revisions, but is being discussed with stakeholders and possibly addressed in future rulemakings.

6-Operational Challenges Caused by Proposed Effluent Rule

COMMENT #6-1: The rule may create a movement toward mechanical treatment and create operational challenges due to the lack of sufficiently trained operators.
RESPONSE #6-1: The rule provides for a compliance schedule that can allow up to 5 years from the next permit issuance or significant modification but not later than December 31, 2013, giving the owners of treatment systems the opportunity to acquire experience or to get appropriate training to successfully operate the upgraded wastewater treatment systems.

7-Effluent Limits for TRC

COMMENT #7-1: Effluent limits that are below analytical delectability are inappropriate. An example is Total Residual Chlorine where the warm-water chronic criterion is 0.019 mg/L and the detectability of that pollutant is 0.200 mg/L.
RESPONSE #7-1: The effluent limits that are below laboratory detection levels were derived through equations aimed at calculating (through procedures such as extrapolation) the stress risk to aquatic life. Therefore, the potential or probable effect of pollutants can be determined without actually measuring down to or observing the harmful levels. To implement a nonmeasurable standard, the Department uses the derived numbers as the limits while setting the noncompliance at the detection level. In the case of total residual chlorine, the discharger is required to measure only to the detection level, which is at 10 times higher than the standard warm-water chronic criterion.

8-Temperature Standards as Effluent Limits

COMMENT #8-1: "Industrial process water and industrial cooling" water should in no event be allowed to exceed general water quality standards, especially those regarding thermal limits.
RESPONSE #8-1: Depending on the receiving stream's characteristics, including flow, velocity, volume, and pollutant concentration and fate, the department can determine the pollutant load limitation needed to avoid exceeding water quality standards. This load limitation is then expressed as an allowable concentration within the effluent. Thermal limits are determined in the same way.

COMMENT #8-2: The +/- 5 degrees of ambient water temperature should be the standard for all discharges into waters of the state.
RESPONSE #8-2: The comment does not provide enough information to receive appropriate response or to cause a change in the rules. Until further evidence shows otherwise, the current rules pertaining to ambient water temperature would appear to provide adequate protection to water quality.

9-Need for Public Notice When Effluent Exceeds Limits

COMMENT #9-1: Any discharge of untreated or partially treated wastewater should require a public notice
RESPONSE #9-1: The Department does not allow discharge of untreated wastewater to the waters of the state. The owners and operators of wastewater treatment facilities are required to notify the department, within a reasonable time frame, of any incident of noncompliance which may endanger human health or the environment. Such requirements are contained within the standard conditions for NPDES permits. Once notified, the Department will take appropriate action to protect the public and the environment and to prevent the incident from reoccurring. These steps have been effective at protecting public health.

10- Effluent Limitations to Special Stream (Outstanding Resource Waters)

COMMENT #10-1: All of the comments support a high level of protection for Outstanding National (ONRW) and State Resource Waters (OSRW). However, comments did not agree on when discharges should be allowed within the tributaries of these special streams. Some opposed any change that would lessen the current protection. Two parts of the proposed revisions to the effluent rule drew the greatest concern; 1) the allowance for any temporary lowering of water quality in these waters from short term construction projects adjacent to these waters and 2) the allowance for a discharge to tributaries of ONRWs. Both of these comments were directed primarily to changes proposed in the discharge restrictions to the Wild and Scenic Rivers and Ozark National Scenic Riverways (which are ONRWs). The comments concerning temporary lowering of water quality create an impression that any and all lowering of water quality should be avoided. The second concern is largely based on a belief that without a discharge ban the department is unable, because of limited budget, to ensure adequate inspection and monitoring of the permitted operations and their discharges. Some comments expressed a concern that

degradation will go undetected and therefore unaddressed. Several comments expressed doubt that discharges could be adequately overseen by the department to ensure against impact, especially in areas of karst topography where discharges have the potential of entering subterranean water routes and reappear in surface streams via springs. Some comments urged the department to consider the department's limited ability to ensure proper operation of the discharging facilities. This concern exists even where the required demonstration is made that the discharges are designed to avoid a reasonable potential for lowering of water quality in the designated segment. Others felt that antidegradation rule at 10 CSR 20-7.031 (2) as currently written strictly prohibits any discharge either directly to or within the watersheds of Outstanding National Resource Waters. The underlying basis for this interpretation is that any discharge within the watershed creates a potential for lowering water quality downstream. A few comments thought that the proposed changes were creating restrictions that were too stringent and would hinder normal and legitimate business activities within the watershed. The same comments urged the department to make the state's regulations consistent with the federal guidance on antidegradation.

RESPONSE AND EXPLANATION OF CHANGE #10-1: In its initial drafting this proposed rule, the department intended to address only the deficiencies identified in EPA's September 8, 2000 letter. That letter identified only one deficiency; the current rule's exemption for discharges into ONRWs from Publicly Owned Treatment Works (POTWs) and mine dewatering water. This current exemption is contradictory to the antidegradation rule at 10 CSR 20-7.031(2). That rule prohibits any new or expanded discharges to an Outstanding National Resource Water (these waters are the Jacks Fork, Current and Eleven Point Rivers). To respond to EPA's comment, only one change in the state effluent limitations is required: the exceptions and effluent limitations published in the rule for POTWs and mine dewatering water must be removed or shown through a proper analysis that the effluent limits would always be protective. That analysis has not been done and would likely show that the effluent limits currently in rule would not always result in no lowering of water quality. While both types of waters require protection from any degradation under the antidegradation rule at 10 CSR 20-7.031(2), only the ONRWs are protected by a strict discharge prohibition in the watershed. Therefore, the department is returning to the current format of the rule and changing only subsection (A) which applies to ONRWs to address EPA's comment. In summary, the only change contained in this Final Order is the removal of the special effluent exceptions for POTWs and mine dewatering water. No changes are being made to the effluent regulations in subsection (B) that affect discharge limitations to OSRWs.

The department did not make any changes in the proposed rule based on the perceived limitations of the department's effort to oversee compliance with these standards through its inspection and monitoring efforts. The department will be developing antidegradation implementation procedures through stakeholder discussions and is scheduling the completion of these procedures by April 30, 2007.

Program or administrative considerations that relate to the implementation of the

antidegradation rule should be addressed through the development of the implementation procedure.

COMMENT #10-2: Protect OSRWs, particularly Spring and Noblett Creeks in Howell and Douglas counties. Allow no degradation. Do not allow "temporary" lowering of water quality. Ozark streams do not recover from gravel mining (referenced research by Dr. Art Brown, University of Arkansas). It is impossible to be sure that no long-term effects will result from repeated (such as occurs with gravel operations) temporary lowering of water quality – even if not below WQS – on the health of the creek.
RESPONSE #10-2: The department will be developing antidegradation implementation procedures through stakeholder discussions and is scheduling the completion of these procedures by April 30, 2007. Program or administrative considerations that relate to the implementation of the antidegradation rule should be addressed through the development of the implementation procedure.

10 CSR 20-7.015 Effluent Regulations.

(1) Designations of Waters of the State.

(A) For the purpose of this rule, the waters of the state are divided into the following categories:

1. The Missouri and Mississippi Rivers;

2. Lakes and reservoirs, including natural lakes and any impoundments created by the construction of a dam across any waterway or watershed. An impoundment designed for or used as a disposal site for tailings or sediment from a mine or mill shall be considered a wastewater treatment device and not a lake or reservoir. Releases to lakes and reservoirs include discharges into streams one-half (1/2) stream mile (.80 km) before the stream enters the lake as measured to its normal full pool;

3. A losing stream is a stream which distributes thirty percent (30%) or more of its flow through natural processes such as through permeable geologic materials into a bedrock aquifer within two (2) miles' flow distance downstream of an existing or proposed discharge. Flow measurements to determine percentage of water loss must be corrected to approximate the seven (7)-day Q_{10} stream flow. If a stream bed or drainage way has an intermittent flow or a flow insufficient to measure in accordance with this rule, it may be determined to be a losing stream on the basis of channel development, valley configuration, vegetation development, dye tracing studies, bedrock characteristics, geographical data and other geological factors. Only discharges which in the opinion of the department reach the losing section and which occur within two (2) miles upstream of the losing section of the stream shall be considered releases to a losing stream. A list of known losing streams is available in the Water Quality Standards, 10 CSR 20-7.031 Table J—Losing Streams. Other streams may be determined to be losing by the *[Geological Survey and Resource Assessment Division]* **Missouri Department of Natural Resources**;

4. Metropolitan no-discharge streams. These streams and the limitations on discharging to them are listed in the commission's Water Quality Standards 10 CSR 20-7.031. This rule shall in no way change, amend or be construed to allow a violation of the existing or future water quality standards;

5. Special streams—wild and scenic rivers, Ozark National Scenic Riverways and Outstanding State Resource Waters;

6. Subsurface waters in aquifers; and

7. All other waters except as noted in paragraphs (1)(A)1.–6. of this rule.

(2) Effluent Limitations for the Missouri and Mississippi Rivers.

(B) Discharges from wastewater treatment facilities which receive primarily domestic waste or from publicly-owned treatment works (POTWs) shall undergo treatment sufficient to conform to the following limitations:

1. Biochemical Oxygen Demand$_5$ (BOD_5) and nonfilterable residues (NFRs) equal to or less than a monthly average of thirty milligrams per liter (30 mg/l) and a weekly average of forty-five milligrams per liter (45 mg/l);

2. pH shall be maintained in the range from six to nine (6–9) standard units;

3. Exceptions to paragraphs (2)(B)1. and 2. are as follows:

A. If the facility is a wastewater lagoon, the NFRs shall be equal to or less than a monthly average of eighty (80) mg/l and a weekly average of one hundred twenty (120) mg/l and the pH shall be maintained above 6.0, and the BOD_5 shall be equal to or less than a monthly average of forty-five (45) mg/l and a weekly average of sixty-five (65) mg/l;

B. If the facility is a trickling filter plant the BOD_5 and NFRs shall be equal to or less than a monthly average of forty-five (45) mg/l and a weekly average of sixty-five (65) mg/l;

C. Where the use of effluent limitations set forward in this section is known or expected to produce an effluent that will endanger or violate water quality, the department will set specific effluent limitations for individual dischargers to protect the water quality of the receiving streams. When a waste load allocation or a total maximum daily load study is conducted for a stream or stream segment, all permits for discharges in the study area shall be modified to reflect the limits established in the study;

D. The department may require more stringent limitations than authorized in subsections (3)(A) and (B) under the following conditions:

(I) If the facility is an existing facility, the department may set the BOD_5 and NFR limits based upon an analysis of the past performance, rounded up to the next five (5) mg/l range; and

(II) If the facility is a new facility, the department may set the BOD_5 and NFR limits based upon the design capabilities of the plant considering geographical and climatic conditions;

(a) A design capability study has been conducted for new lagoon systems. The study reflects that the effluent limitations should be BOD_5 equal to or less than a monthly average of forty-five (45) mg/l, a weekly average of sixty-five (65) mg/l, NFRs equal to or less than a monthly average of seventy (70) mg/l and a weekly average of one hundred ten (110) mg/l.

(b) A design capability study has been conducted for new trickling filter systems and the study reflects that the effluent limitations should be BOD_5 and NFRs equal to or less than a monthly average of forty (40) mg/l and a weekly average of sixty (60) mg/l; and

E. If the facility is a POTW wastewater treatment facility providing at least primary treatment during a precipitation event and discharges on a noncontinuous basis, the discharge may be allowed provided that:

(I) BOD_5 and NFRs equal to or less than a weekly average of forty-five (45) mg/l. The NFR (total suspended solids) limit may be higher than forty-five (45) mg/l for combined sewer overflow treatment devices when organic solids are demonstrated to be an insignificant fraction of total inorganic storm water generated solids, and the permittee can demonstrate that achieving a limit of forty-five (45) mg/l is not cost effective relative to water quality benefits. In these cases, an alternative total suspended solids limit would be developed.

(II) pH shall be maintained in the range from six to nine (6–9) standard units; and

(III) Only the wastewater in excess of the capacity of the noncontinuous wastewater treatment plant hydraulic capacity may be discharged;

4. Fecal coliform. Discharges into segments identified as whole body contact areas shall not contain more than a monthly *[average]* **geometric mean** of four hundred (400) fecal coliform colonies per one hundred milliliters (100 ml) and a daily maximum of one thousand (1,000) fecal coliform colonies per one hundred milliliters (100 ml) from April 1 to October 31. The department may waive or relax this limitation if the owner or operator of

the wastewater treatment facility can demonstrate that neither health nor water quality will be endangered by failure to disinfect. Facilities without disinfected effluent shall comply with the implementation schedule found in subsection (9)(H) of this rule. During periods of wet weather, a temporary suspension of accountability for bacteria standards may be established through the process described in subsection (9)(I) of this rule.

5. Sludges removed in the treatment process shall not be discharged. Sludges shall be routinely removed from the wastewater treatment facility and disposed or used in accordance with a sludge management practice approved by the department; and

6. When the wastewater treatment process causes nitrification which affects the BOD_5 reading, the permittee can petition the department to substitute carbonaceous BOD_5 in lieu of regular BOD_5 testing. If the department concurs that nitrification is occurring, the department will set a carbonaceous BOD_5 at five (5) mg/l less than the regular BOD_5 in the operating permit.

(3) Effluent Limitations for the Lakes and Reservoirs.

(B) Discharges from wastewater treatment facilities which receive primarily domestic waste or from POTWs shall undergo treatment sufficient to conform to the following limitations:

1. BOD_5 and NFRs equal to or less than a monthly average of twenty (20) mg/l and a weekly average of thirty (30) mg/l;

2. pH shall be maintained in the range from six to nine (6–9) standard units;

3. Discharge to lakes and reservoirs identified as whole body contact areas shall not contain more than a monthly *[average]* **geometric mean** of four hundred (400) fecal coliform colonies per one hundred milliliters (100 ml) and a daily maximum of one thousand (1,000) fecal coliform colonies per one hundred milliliters (100 ml) from April 1 to October 31. The department may waive or relax this limitation if the permittee can demonstrate that neither health nor water quality will be endangered by failure to disinfect**.** Facilities without disinfected effluent shall comply with the implementation schedule found in subsection (9)(H) of this rule. During periods of wet weather, a temporary suspension of accountability for bacteria standards may be established through the process described in subsection (9)(I) of this rule;

4. Where the use of effluent limitations set forth in section (3) is known or expected to produce an effluent that will endanger or violate water quality, the department may either—conduct waste load allocation studies in order to arrive at a limitation which protects the water quality of the state or set specific effluent limitations for individual dischargers to protect the water quality of the receiving streams. When a waste load allocation study is conducted for a stream or stream segment, all permits for discharges in the study area shall be modified to reflect the limits established in the waste load allocation study;

5. If the facility is a POTW wastewater treatment facility providing at least primary treatment during a precipitation event and discharges on a noncontinuous basis, the discharge may be allowed subject to the following:

A. BOD_5 and NFRs equal to or less than a weekly average of forty-five (45) mg/l;

B. pH shall be maintained in the range from six to nine (6–9) standard units; and

C. Only the wastewater in excess of the capacity of the noncontinuous wastewater treatment plant hydraulic capacity may be discharged;

6. Sludges removed in the treatment process shall not be discharged. Sludges shall be routinely removed from the wastewater treatment facility and disposed of or used in accordance with a sludge management practice approved by the department; and

7. When the wastewater treatment process causes nitrification which effects the BOD_5 reading, the permittee can petition the department to substitute carbonaceous BOD_5 in lieu of regular BOD_5 testing. If the department concurs that nitrification is occurring, the department will set a carbonaceous BOD_5 at five (5) mg/l less than the regular BOD_5 in the operating permit.

(4) Effluent Limitations for Losing Streams.

(B) If the department agrees to allow a release to a losing stream, the permit will be written using the limitations contained in subsections (4)(B) and (C). Discharges from wastewater treatment facilities which receive primarily domestic waste or from POTWs permitted under this section shall undergo treatment sufficient to conform to the following limitations:

1. BOD_5 equal to or less than a monthly average of ten (10) mg/l and a weekly average of fifteen (15) mg/l;

2. NFRs equal to or less than a monthly average of fifteen (15) mg/l and a weekly average of twenty (20) mg/l;

3. pH shall be maintained in the range from six to nine (6–9) standard units;

4. Discharges to losing streams shall not contain more than a monthly *[average]* **geometric mean** of four hundred (400) fecal coliform colonies per one hundred milliliters (100 ml) and a daily maximum of one thousand (1,000) fecal coliform colonies per one hundred milliliters (100 ml);

5. All chlorinated effluent discharges to losing streams or within two (2) stream miles flow distance upstream of a losing stream shall also be dechlorinated prior to discharge.

6. If the facility is a POTW wastewater treatment facility providing at least primary treatment during a precipitation event and discharges on a noncontinuous basis, the discharge may be allowed subject to the following:

A. BOD_5 and NFRs equal to or less than a weekly average of forty-five (45) mg/l;

B. pH shall be maintained in the range from six to nine (6–9) standard units; and

C. Only the wastewater in excess of the capacity of the noncontinuous wastewater treatment plant hydraulic capacity may be discharged;

7. Sludges removed in the treatment process shall not be discharged. Sludges shall be routinely removed from the wastewater treatment facility and disposed of or used in accordance with a sludge management practice approved by the department; and

8. When the wastewater treatment process causes nitrification which effects the BOD_5 reading, the permittee can petition the department to substitute carbonaceous BOD_5 in lieu of regular BOD_5 testing. If the department concurs that nitrification is occurring, the department will set a carbonaceous BOD_5 at five (5) mg/l less than the regular BOD_5 in the operating permit.

(6) *[Discharge Restrictions for Outstanding National or State Resource Waters and Drainages Thereto.]* **Effluent Limitations for Special Streams.**

[(A) Discharge Restrictions for Outstanding National or State Resource Waters.

1. Except as specified below, no new or expanded discharges shall be allowed directly into these waters.

2. Discharge from sources that existed before June 29, 1974, are allowed.

3. When additional waters are designated in 10 CSR 20-7.031—Tables D & E, discharges that are permitted at the time of the designation are allowed.

4. Temporary lowering of water quality, but not below water quality standards, may be allowed from storm water discharges during a construction project with prior approval by the department.]

[(B) Discharge Restrictions in the watershed of Outstanding National or State Resource Waters.

1. All discharges into the tributaries of designated waters must ensure that no lowering of water quality occurs at or below the point the tributary enters the designated water.

2. Discharges within the watershed of designated waters shall not result in the lowering of water quality in the designated water through hydrologic connections, such as through groundwater.

3. Watershed, as used in this section, shall be any drainage area, on the surface or underground, that drains or flows to a designated water.]

(A) Limits for Wild and Scenic Rivers and Ozark National Scenic Riverways and Drainages Thereto.

1. The following limitations represent the maximum amount of pollutants which may be discharged from any point source, water contaminant source or wastewater treatment facility to waters included in this section.

2. Discharges from wastewater treatment facilities, which receive primarily domestic waste or from POTWs are limited as follows:

A. New releases from any source are prohibited;

B. Discharges from sources that existed before June 29, 1974, or if additional stream segments are placed in this section, discharges that were permitted at the time of the designation will be allowed;

3. Industrial, agricultural and other non-domestic contaminant sources, point sources or wastewater treatment facilities which are not included under subparagraph (6)(A)2.B. shall not be allowed to discharge. Agrichemical facilities shall be designed and constructed so that all bulk liquid pesticide nonmobile storage containers and all bulk liquid fertilizer nonmobile storage containers are located within a secondary containment facility. Dry bulk pesticides and dry bulk fertilizers shall be stored in a building so that they are protected from the weather. The floors of the buildings shall be constructed of an approved design and material(s). At an agrichemical facility, all transferring, loading, unloading, mixing and repackaging of bulk agrichemicals shall be conducted in an operational area. All precipitation collected in the operational containment area or secondary containment area as well as process generated wastewater shall be stored and disposed of in a no-discharge manner.

4. Monitoring requirements.

A. The department will develop a wastewater and sludge sampling program based on design flow that will require, at a minimum, one (1) wastewater sample per year for each twenty-five thousand (25,000) gpd of effluent, or fraction thereof, except that—

(I) Point sources that discharge less than five thousand (5,000) gpd may only be required to submit an annual report;

(II) Point sources that discharge more than one point three (1.3) mgd will be required at a minimum to collect fifty-two (52) wastewater samples per year; and

(III) Sludge sampling will be established in the permit.

B. Sampling frequency shall be spread evenly throughout the discharge year. This means that a point source with a continuous discharge shall take samples on a regular schedule, while point sources with seasonal discharges shall collect samples during the season of discharge.

C. Sample types shall be as follows:

(I) Samples collected from lagoons may be grab samples;

(II) Samples collected from mechanical plants shall be twenty-four (24)-hour composite samples, unless otherwise specified in the operating permit; and

(III) Sludge samples shall be a grab sample unless otherwise specified in the operating permit.

D. The monitoring frequency and sample types stated in paragraph (6)(D)3. are minimum requirements. The permit writer shall establish monitoring frequencies and sampling types to fulfill the site specific informational needs of the department.

(B) Limits for Outstanding State Resource Waters as per Water Quality Standards.

1. Discharges shall not cause the current water quality in the streams to be lowered.

2. Discharges will be permitted as long as the requirements of paragraph (6)(B)1. are met and the limitations in section (8) are not exceeded.

(7) Effluent Limitations for Subsurface Waters.

(C) All abandoned wells and test holes shall be properly plugged or sealed to prevent pollution of subsurface waters, as per the requirements of the *[Geological Survey and Resource Assessment Division]* **Missouri Department of Natural Resources**.

(8) Effluent Limitations for All Waters, Except Those in Paragraphs (1)(A)1.–6.

(B) Discharges from wastewater treatment facilities which receive primarily domestic waste or POTWs shall undergo treatment sufficient to conform to the following limitations:

1. BOD_5 and NFRs equal to or less than a monthly average of thirty (30) mg/l and a weekly average of forty-five (45) mg/l;

2. pH shall be maintained in the range from six to nine (6–9) standard units;

3. The limitations of paragraphs (8)(B)1. and 2. will be effective unless a water quality impact study has been conducted by the department, or conducted by the permittee and approved by the department, showing that alternate limitation will not cause violations of the Water Quality Standards or impairment of the uses in the standards. When a water quality impact study has been completed to the satisfaction of the department, the following alternate limitation may be allowed:

A. If the facility is a wastewater lagoon, the NFRs shall be equal to or less than a monthly average of eighty (80) mg/l and a weekly average of one hundred twenty (120) mg/l and the pH shall be maintained above 6.0 and the BOD_5 shall be equal to or less than a monthly average of forty-five (45) mg/l and a weekly average of sixty-five (65) mg/l;

B. If the facility is a trickling filter plant, the BOD_5 and NFRs shall be equal to or less than a monthly average of forty-five (45) mg/l and a weekly average of sixty-five (65) mg/l;

C. Where the use of effluent limitations set forth in section (8) is known or expected to produce an effluent that will endanger water quality, the department will set specific effluent limitations for individual dischargers to protect the water quality of the receiving streams. When a waste load allocation study is conducted for a stream or stream segment, all permits for discharges in the study area shall be modified to reflect the limits established in the waste load allocation study;

D. The department may require more stringent limitations than authorized in subsections (3)(A) and (B) under the following conditions:

(I) If the facility is an existing facility, the department may set the BOD_5 and NFR limits based upon an analysis of the past performance, rounded up to the next five (5) mg/l range; and

(II) If the facility is a new facility, the department may set the BOD_5 and NFR limits based upon the design capabilities of the plant considering geographical and climatic conditions;

(a) A design capability study has been conducted for new lagoon systems. The study reflects that the effluent limitations should be BOD_5 equal to or less than a monthly average of forty-five (45) mg/l, a weekly average of sixty-five (65) mg/l, NFRs equal to or less than a monthly average of seventy (70) mg/l and a weekly average of one hundred ten (110) mg/l;

(b) A design capability study has been conducted for new trickling filter systems and the study reflects that the effluent limitations should be BOD_5 and NFR equal to or less than a monthly average of forty (40) mg/l and a weekly average of sixty (60) mg/l; and

E. If the facility is a POTW wastewater treatment facility providing at least primary treatment during a precipitation event and discharges on a noncontinuous basis, the discharge may be allowed provided that:

(I) BOD_5 and NFRs equal to or less than a weekly average of forty-five (45) mg/l. The NFR (total suspended solids) limit may be higher than forty-five (45) mg/l for combined sewer overflow treatment devices when organic solids are demonstrated to be an insignificant fraction of total inorganic storm water generated solids, and the permittee can demonstrate that achieving a limit of forty-five (45) mg/l is not cost effective relative to water quality benefits. In these cases, an alternative total suspended solids limit would be developed.

(II) pH shall be maintained in the range from six to nine (6–9) units; and

(III) Only the wastewater in excess of the capacity of the noncontinuous wastewater treatment plant hydraulic capacity may be discharged;

4. Fecal coliform.

A. Discharges to streams identified as whole body contact areas, discharges within two (2) miles upstream of these areas and discharges to streams with a seven (7)-day Q_{10} flow of zero (0) in metropolitan areas where the stream is readily accessible to the public shall not contain more than a monthly *[average]* **geometric mean** of four hundred (400) fecal coliform colonies per one hundred milliliters (100 ml) and a daily maximum of one thousand (1,000) fecal coliform colonies per one hundred milliliters (100 ml) from April 1 to October 31. The department may waive or relax this limitation if the owner or operator of the wastewater treatment facility can demonstrate that neither health nor water quality will be endangered by failure to disinfect. Facilities without disinfected effluent shall comply with the implementation schedule found in subsection (9)(H) of this rule. During periods of

wet weather, a temporary suspension of accountability for bacteria standards may be established through the process described in subsection (9)(I) of this rule.

B. Where chlorine is used as a disinfectant, the effluent shall be dechlorinated except when the discharge is—

(I) Into an unclassified stream at least one (1) mile from a Water Quality Standards classified stream; or

(II) Into a flowing stream where the seven (7)-day Q_{10} flow is equal to or greater than fifty (50) times the design effluent flow;

5. Sludges removed in the treatment process shall not be discharged. Sludges shall be routinely removed from the wastewater treatment facility and disposed of or used in accordance with a sludge management practice approved by the department; and

6. When the wastewater treatment process causes nitrification which affects the BOD_5 reading, the permittee can petition the department to substitute carbonaceous BOD_5 in lieu of regular BOD_5 testing. If the department concurs that nitrification is occurring, the department will set a carbonaceous BOD_5 at five (5) mg/l less than the regular BOD_5 in the operating permit.

(9) General Conditions.

(H) Implementation Schedule for Protection of Whole Body Contact and Secondary Contact Recreation.

1. *[Upon the first renewal of each permit upon the effective date of this rule, each permit shall be modified to contain]* **For all permitted wastewater discharges containing bacteria, the department shall, upon the issuance or first renewal or first significant modification of each permit on or after December 31, 2005, include within each permit** a compliance schedule that provides up to *[three (3)]* **five (5)** years for the permittee to either install disinfection systems, present an evaluation sufficient to show that disinfection is not required to protect one or both designated recreational uses, or present a use attainability analyses (UAA) that demonstrates one or both designated recreational uses are not attainable in the classified waters receiving the effluent. *[Permit applications received after the effective date of this rule for newly constructed or upgraded facilities shall comply with this subsection upon permit issuance.]* **This provision does not apply to permits issued for construction applications submitted to the department after December 31, 2005.**

2. Notwithstanding the provisions of (9)(H)1., all permits shall insure compliance with effluent limits to protect whole body contact and secondary contact recreation by no later than December 31, 2013, unless the permittee presents an evaluation sufficient to show that disinfection is not required to protect one or both designated recreational uses, or a use attainability analyses (UAA) demonstrates that one or both designated recreational uses are not attainable in the classified waters receiving the effluent.

(I) Temporary Suspension of Accountability for Bacteria Standards during Wet Weather. The accountability for bacteria standards may be temporarily suspended for specific discharges when conditions contained in paragraphs (9)(I)1. through 3. are met.

1. *[No recreational use exists within two (2) miles downstream of the discharge during the period of suspension as confirmed through a use assessment.]* **No existing recreational uses downstream of the discharge will be impacted during the period of suspension as confirmed through a water quality review for reasonable potential for downstream impacts and a use attainability analysis performed in accordance with the**

Recreational Use Attainability Analysis Protocol approved by the Missouri Clean Water Commission on November 3, 2004.

2. *[Compliance with water quality based discharge controls more stringent than secondary treatment standards for domestic wastewater treatment systems, approved watershed management plans, or approved long-term control plans (LTCPs) for combined sewer overflows (CSOs) would result in substantial and widespread economic and social impact.]* **The period of suspension must be restricted to the defined wet weather event that corresponds to the period when recreational uses are unattainable. The period must be determinable at any time by the discharger and the general public (such as from stream depth or flow readings or other stream conditions on which publicly accessible records are kept).**

3. *[The Missouri Clean Water Commission has approved the suspension.]* **The suspension shall be subject to public review and comment, Missouri Clean Water Commission approval, and U.S. Environmental Protection Agency approval before becoming effective and shall be contained as a condition in a discharge permit or other written document developed through public participation.**